

REMARKS

Status of Claims:

Claims 1-8 are present for examination.

Obviousness Rejections:

Claims 1, 5, and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over admitted prior art (AAPA) in view of Cha et al. (U.S. Patent Number 6,486,933 B1) (hereinafter Cha) and Choi et al. (U.S. Patent Number 6,429,918 B1) (hereinafter Choi).

Claims 2-4 and 7-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over AAPA and Choi, in view of Lin et al. (U.S. Patent Number 6,757,031 B2) (hereinafter Lin).

With respect to claims 1-8, as amended, the rejections are respectfully traversed.

Independent claim 1, as amended, recites an active matrix type liquid crystal display device comprising:

“a pair of substrates;

a liquid crystal sealed between said pair of substrates;

a plurality of data lines and a plurality of scanning lines which are arranged so as to intersect each other on one surface of a first of said pair of substrates;

a switching element having an electric current path, one end of which is connected to a corresponding one of said data lines, and having a control terminal which is connected to a corresponding one of said scanning lines;

a pixel electrode which is provided above said data lines via an insulation film, and is connected to the other end of the electric current path of said switching element;

a common electrode which opposes said data lines via said insulation film, said common electrode having slits in portions overlapping said data lines;

a black matrix which is arranged on a second of said pair of substrates in a predetermined pattern, said black matrix being covered by a flattening film; and

a first conductive film provided on said flattening film so as to oppose said data lines via said slits, said first conductive film being set to a common electric potential with said common electrode;

wherein said first conductive film overlaps said portions of said common electrode where said slits are formed;

wherein an electric field can be generated between said common electrode and said pixel electrode;

wherein at least some portions of said common electrode that are adjacent to said slits overlap at least some portions of said data lines; and

wherein a portion of said black matrix that is located opposite a data line of said plurality of data lines has a width that is less than a width of said data line." (Emphasis Added).

An active matrix type liquid crystal display device including the above-quoted features has at least the advantages that: (i) a common electrode that opposes data lines has slits in portions overlapping the data lines and at least some portions of the common electrode that are adjacent to the slits overlap at least some portions of the data lines; and (ii) a portion of a black matrix that is located opposite a data line has a width that is less than a width of the data line. For example, in a case where a data line has a width of 10 µm and a slit has a width of 5 µm, a width of a portion of a black matrix located opposite the data line may be less than 10 µm, such as, for example, having a width of 5 µm. Thus, the width of the portion of the black matrix can be reduced with respect to, for example, a unit pixel area of the liquid crystal display device and, thus, an aperture ratio can be improved. (Specification; paragraphs [0111], [0119], [0132], and [0164]).

Neither AAPA, Cha, nor Choi, alone or in combination, disclose or suggest an active matrix type liquid crystal display device including the above-quoted features with a portion of a black matrix located opposite a data line having a width that is less than a width of the data line.

In AAPA, FIG. 15, a width of a portion of a black matrix 202 that is located opposite a data line 106 has a width that is greater than a width of the data line 106. (Applicant's Specification; paragraph [0009]). Also, in AAPA, FIG. 17, a width of a portion of a black matrix 202 that is located opposite a data line 106 has a width that is greater than a width of the data line 106. (AAPA; FIG. 17).

Cha does not cure the deficiency with respect to the teaching of AAPA, because in the liquid crystal display device of Cha, a width of a light blocking film 120 that is located opposite a data line 700 has a width that is greater than a width of the data line 700. (Cha; FIGs. 7 and 9, references 120 and 700; column 2, lines 6-15; column 6, lines 36-50).

Similarly, Choi does not cure the deficiency with respect to the teachings of AAPA and Cha, because in the liquid crystal display device of Choi, a width of a black matrix 33 located opposite a data bus line 13 has a width that is greater than a width of the data bus line 13. (Choi; FIG. 3; column 3, lines 30-35; column 4, lines 55-61). Indeed, Choi explicitly states that, "the black matrix 33 has a wider width than the data bus line 13". (Choi; column 4, lines 59-60) (Emphasis Added).

Therefore, independent claim 1, as amended, is neither disclosed nor suggested by the cited prior art and, hence, is believed to be allowable. The Patent Office has not made out a *prima facie* case of obviousness under 35 U.S.C. 103.

Independent claim 5, as amended, recites a method of manufacturing an active matrix type liquid crystal display device with features similar to features of an active matrix type liquid crystal display device of independent claim 1. Therefore, independent claim 5 is believed to be allowable for at least the same reasons that independent claim 1 is believed to be allowable.

The dependent claims are deemed allowable for at least the same reasons indicated above with regard to the independent claims from which they depend.

Conclusion:

Applicant believes that the present application is now in condition for allowance.
Favorable reconsideration of the application as amended is respectfully requested.

The Examiner is invited to contact the undersigned by telephone if it is felt that a telephone interview would advance the prosecution of the present application.

The Commissioner is hereby authorized to charge any additional fees which may be required regarding this application under 37 C.F.R. §§ 1.16-1.17, or credit any overpayment, to Deposit Account No. 19-0741. Should no proper payment be enclosed herewith, as by a check being in the wrong amount, unsigned, post-dated, otherwise improper or informal or even entirely missing, the Commissioner is authorized to charge the unpaid amount to Deposit Account No. 19-0741.

If any extensions of time are needed for timely acceptance of papers submitted herewith, Applicant hereby petitions for such extension under 37 C.F.R. §1.136 and authorizes payment of any such extensions fees to Deposit Account No. 19-0741.

Respectfully submitted,

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